

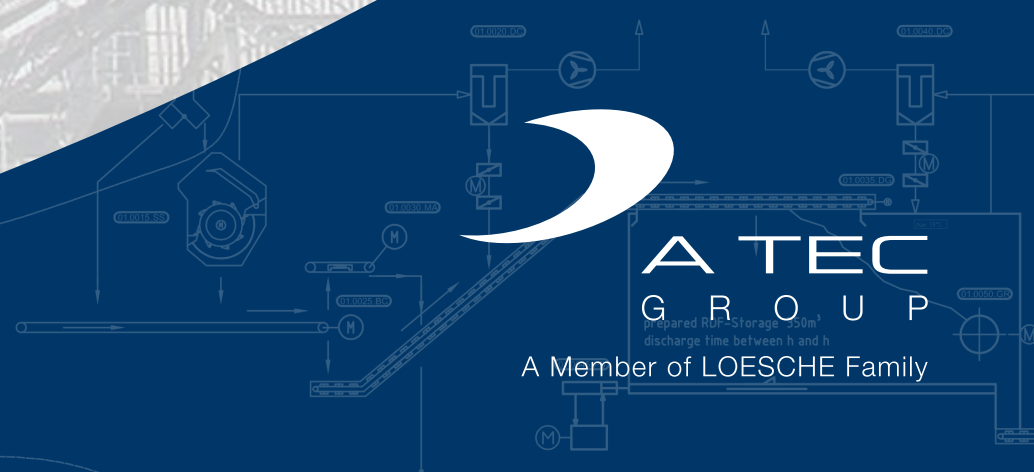
**FROM WASTE TO
ALTERNATIVE FUEL**



**ATEC
GROUP**

prepared RUF-Storage 350m³
discharge time between h and h

A Member of LOESCHE Family



YOUR RELIABLE COMPLETE SOLUTION FOR ULTIMATE PLANT PERFORMANCE

A COMPREHENSIVE SOLUTION TO COVER ALL CRUCIAL STEPS

IMPROVED ENVIRONMENTAL BALANCE

The shift to alternative fuel firing is of high priority at A TEC. By using modern and innovative technologies, combined with our process know-how, we are able to reduce costs and offer reliable solutions for the reduction of environmental impacts in the cement industry.

ALTERNATIVE FUEL SYSTEM

Based on our expert knowledge in pyroprocessing and alternative fuel preparation, we have comprehensively optimized waste preparation and pyroprocessing. With a complete and unique alternative fuel system, A TEC covers all crucial steps from engineering to supplying equipment and plant construction.

As a complete system supplier with long-term experience in waste treatment and handling, we are able to guarantee significant commercial and environmental benefits:

- Sustainable cost reduction
- Fast amortization
- Up to 100% substitution rate
- Compliance with environmental regulations
- Process guarantees
- Complete solution from a single source



01 MARKET SURVEY

DETAILED ANALYSIS

Before implementing a tailor-made alternative fuel system it is essential to **carry out a detailed market survey**. We take a look at sourcing available alternative fuels, and we evaluate the quantities of existing alternative fuels and research collecting systems and conditions.

02 PLANT INVESTIGATION

RESEARCH ON SITE

After getting an idea of the preconditions, a team of engineers evaluate the existing system on site. The aim of the **plant investigation** is to identify available space for installing equipment, as well as analyzing possible conversion scenarios to increase the substitution rate.

TAILOR-MADE SOLUTIONS FROM A TEC

01 MARKET SURVEY

- Sourcing available alternative fuels
- Evaluating quantities
- Researching collecting systems and conditions

03 FEASIBILITY STUDY

- Detailed process calculations and simulations
- Conceptual design of the plant
- Estimating investment and operating costs

05 ENGINEERING

- Innovative products
- Basic plant layout
- Detailed plant design and component design

07 PLANT CONSTRUCTION

- Modifications to the existing system
- Full service during erection and day-to-day operations

01 MARKET SURVEY

02 PLANT INVESTIGATION

03 FEASIBILITY STUDY

04 PYRO-PROCESS

05 ENGINEERING

06 SUPPLYING EQUIPMENT

07 PLANT CONSTRUCTION

02 PLANT INVESTIGATION

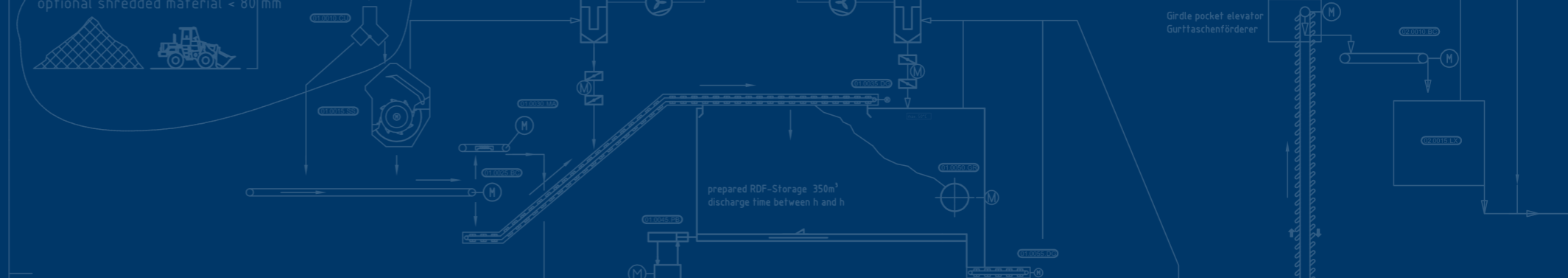
- Evaluating the existing system
- Investigating available space for installing equipment
- Analyzing possible conversion scenarios to increase the substitution rate

04 PYROPROCESSING

- Pyroprocessing calculation with the available AF
- Evaluating the impact on the entire process
- Assessing the remaining capacity required from existing equipment and modification works

06 SUPPLYING EQUIPMENT

- Innovative products to optimize the entire process
- MASTER System to significantly increase the TSR



03 FEASIBILITY STUDY

COMPLETE EVALUATION

To develop a complete system, a **feasibility study** with detailed process calculations and simulations will be carried out by our experts. A TEC estimates investments, operating costs and creates a conceptual design of the plant.

04 PYROPROCESSING

OPTIMIZATION OF THE CORE

Pyroprocessing is the core of a complete alternative fuel system. A TEC generates pyroprocessing calculations with the available alternative fuels, evaluates the impact on the entire process and assesses the remaining capacity required from existing equipment and modification works.



06 SUPPLYING EQUIPMENT

The core of our equipment is the so-called **MASTER System** – Maximum Alternative Substitution To Environmental Recovery. By combining the Rocket Mill and FLEXIFLAME Rotary Kiln Burner Ecopro®, a substitution rate of 100% of solid alternative fuel is achievable.

FLEXIFLAME – ROTARY KILN BURNER ECOPRO®

With three types of airflows and a unique design, the burner uses simple procedures to optimize complex fuel firing and attain better control over NOx emissions. The burner delivers a thermal output of up to 175 MW and can use just one or multiple fuels, with a variable mix.

- Increased control over NOx emissions
- Enhanced control over ring formation
- More control over the sulfur cycle
- Better clinker product quality
- Longer refractory service life
- More flexibility with flame control
- Better process stability

ROCKET MILL

The Rocket Mill is the next step in the preparation of alternative fuels. Effective grinding is possible in one step. With this grinding technology a drying effect of approx. 10% is achieved. Additional drying with process gas for very wet alternative fuels is possible (drying rate more than 10%). The ultra-fines are dusted and also dosed to the kiln system.

- Size reduction from 250mm to 5mm in one step
- Easy to operate and maintain
- No knives to keep sharp
- Separation of metal materials
- Different output fuel particle sizes possible
- Drying effect of AF from 10% upward
- High resistance to foreign objects

05 ENGINEERING

VAST EXPERIENCE

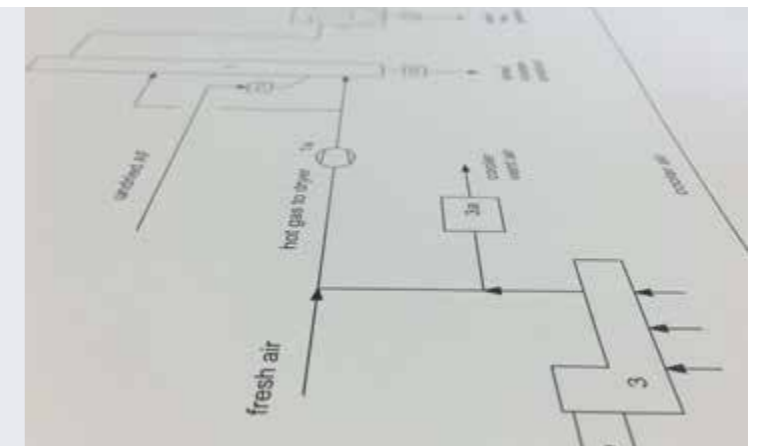
Based on the collected data and the customer's demands, our technicians create tailor-made basic **engineering** techniques, including a detailed plant design and a component design. Computer-aided simulations of process parameters after modifications provide a precise representation of possible achievements.

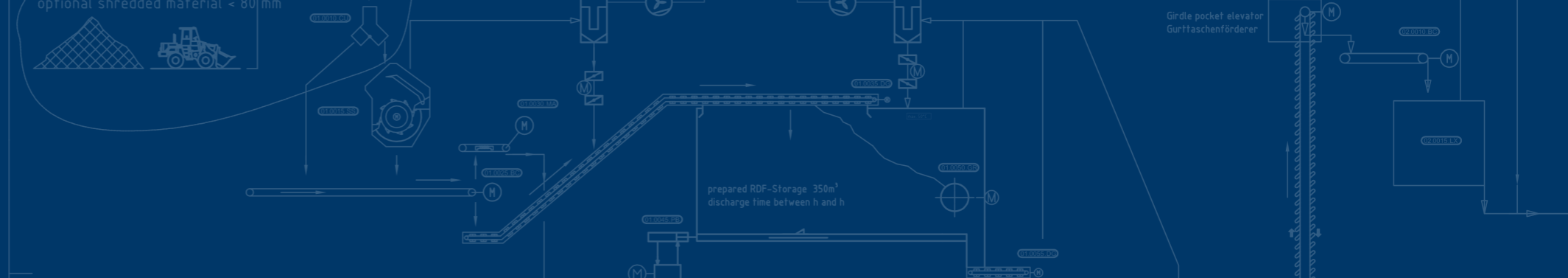


06 SUPPLYING EQUIPMENT

DRYING

A TEC has patented a special procedure for processing alternative fuels; it allows AF to be dried using waste gas during the crushing process in rotary crushers. This new procedure optimizes the quality and capabilities of AF, thus enabling maximum substitution rates. Additionally A TEC offers conventional drying processes combined with simultaneous separation of dense media.





BESIDES THE MASTER SYSTEM, ADDITIONAL HIGH-PERFORMANCE EQUIPMENT FROM A TEC PROVIDES THE BEST ENABLING TECHNOLOGY FOR THE WHOLE ALTERNATIVE FUEL SYSTEM.

06 SUPPLYING EQUIPMENT

SWING CHUTE

The swing chute is used as safety equipment for feeding alternative fuels into the combustion system. In the event of an operating problem, the gravity-driven chute swivels out and completely closes the furnace system off from the alternative fuels feed. No drive is needed.



06 SUPPLYING EQUIPMENT

COMBUSTION CHAMBER

Our combustion chamber significantly improves the combustion process by using tertiary air with 21% oxygen. A significantly higher temperature can be achieved, compared to conventional calcines, due to the closed volume combustion. Another advantage is the increase in retention time, which allows the combustion of bigger particles.



06 SUPPLYING EQUIPMENT

POST COMBUSTION CHAMBER

The mixing of combustion exhaust, tertiary air streams and unburnt fuels can be hugely improved using our Post-Combustion Chamber. This results in better combustion and lower CO emissions.



06 SUPPLYING EQUIPMENT

DeNO_x SYSTEM

The DeNox System is your way to minimize NO_x emissions below the limit of 200 mg/Nm³.



06 SUPPLYING EQUIPMENT

COUNTER ROTATING SCREEN DRUM

The Counter-Rotating Screen Drum is an excellent solution for domestic, industrial or plastic waste. Each screening section is equipped with housing and a connection flange on top to eliminate odor and fine dust, especially for indoor arrangements.



06 SUPPLYING EQUIPMENT

REDUCLOR® BYPASS

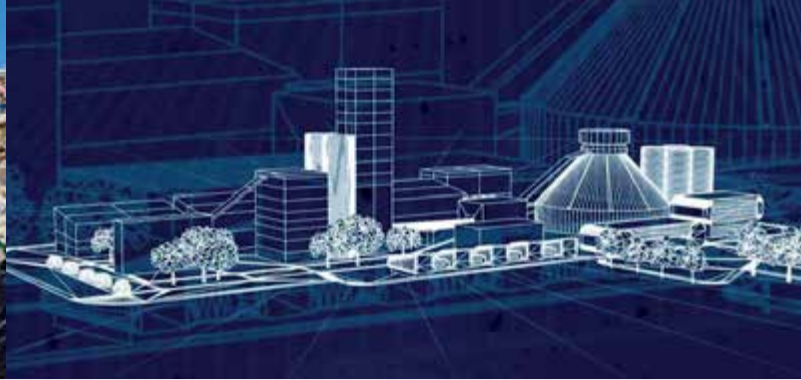
The REDUCLOR® Bypass prevents chlorine from circulating during the combustion process. This can be ensured using a take-off chamber above the kiln inlet (specifically designed for each installation) and a maintenance-free quenching chamber where the chlorine condensates and adheres to the fine dust particles. After this condensation process, the Cl-enriched material is collected in a filter.

07 PLANT CONSTRUCTION

LOCAL EXPERTISE

Finally, the modifications are implemented to the existing system on site. We support our customers during the reconstruction or erection, and afterwards during day-to-day operations.





ATEC GROUP

A Member of LOESCHE Family

A TEC Production & Services GmbH

Finkensteiner Straße 9
9585 Gödersdorf, Austria
Phone: +43 4257 3600
Fax: +43 4257 3600 101
office@atec-ltd.com

optional standard part

truck unloading optional

